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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Dover Gas Light Site
Draft FS Report

DATE: 3-23-93

FROM: Jay Newbaker, Hydrogeologist J.N.
Technical Support Section (3HW13)

TO: Randy Sturgeon, RPM
DE/MD Remedial Section (3HW42)

I have reviewed the Draft Feasibility Study for the Dover Gas Light Site prepared by Consoer, Townsend, and Associates dated February 15, 1993.

Although the use of in-situ biological treatment of off-site soils was evaluated, the use of innovative technologies such as soil vacuum extraction, in-situ steam extraction, and soil flushing used either independently or in combination with one another was not evaluated. One or more of these technologies may be applicable to remediate contaminated on-site or off-site soils above or below the water table. Note that the presence of iron in subsurface soils may prevent successful implementation of in-situ bioremediation.

Steam extraction is currently being demonstrated to remediate oily waste and coal tar in unconsolidated deposits at the Brodhead Creek site. Although I haven't researched these technologies exhaustively to see if they are applicable at the Dover Gas Light Site, I am concerned that none of the alternatives in the FS adequately address waste materials occurring below the water in the vicinity of the source area beneath the former MGP facilities and that bioremediation may not be feasible for off-site soils.

In addition to the above concerns, the following comments should be addressed before proceeding with remedial activities.

4.1 Remedial Action Objectives (p. 4-1)

1. No remedial action objectives for groundwater were included in the FS report. Potential response objectives for groundwater include the following:

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- Prevent exposure to contaminated groundwater
 - Establish institutional controls to restrict access to the contaminant plume
- Protect uncontaminated ground and surface water for current and future use
 - Prevent contamination of existing wells that could be affected by the plume and in adjacent groundwater
 - Minimize migration of contaminants within the ground and surface water
 - Minimize migration of contaminants to adjacent ground and surface water
- Restore contaminated groundwater for future use
 - Reduce contaminant concentrations within the area of the plume to levels that are safe for drinking
- Protect environmental receptors

Determining remedial action objectives for groundwater also involves establishing preliminary cleanup levels, determining the area of attainment, and estimating restoration time-frames. Although the area of attainment, defined as the area outside the boundary of any waste remaining in place and up to the boundary of the contaminant plume, has been approximated in Figure 4-5, preliminary clean-up goals and restoration time-frames were not addressed in the FS. The revised FS report should provide an expanded description of remedial action objectives for groundwater using the factors described above in order to provide a framework for addressing groundwater remediation.

4.2.3 On-site Contaminated Soil (p. 4-5)

2. Estimates of the areal extent of site related soil contamination potentially requiring remediation were subjectively based upon areas containing BTEX compounds in excess of 100 ppb and PAH compounds in excess of 1000 ppb (Figure 2-3). However, in order to ensure that any contamination remaining in the soil is protective to groundwater, the Summers method can be used to make a more objective evaluation of the areal extent of soil contamination requiring remediation.

The Summers method can be used to determine the soil

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contaminant concentration level that would prohibit future leachate from exceeding target groundwater concentrations such as MCL's or health-based levels. The method is a mass balance approach that assumes rainfall infiltrating the vadose zone will desorb contaminants from the soil based on equilibrium soil:water partitioning. Guidance on application of this method can be found in the document entitled "Determining Soil Response Action Levels Based on Potential Contaminant Migration to Ground Water: A Compendium of Examples" (EPA/540/2-89/057).

4.2.4. Contaminated Ground Water in the Vicinity of the Site
(p. 4-6)

3. It is not clear why Area A does not encompass the estimated extent of site-related BTEX contamination depicted in Figure 2-18.

5.0 Development and Evaluation of Alternatives (p. 5-1)

4. In order to ensure continued protectiveness to underlying aquifers, alternatives including groundwater monitoring should also involve monitoring of the Frederica aquifer.
5. It is not clear why no specifics regarding groundwater monitoring are included in the alternatives that don't include groundwater pump and treat, specifically Alternatives 1 and 2. In addition, for the alternatives that do include some form of pump and treat, (alternatives 3 and 4), it is not clear why only monitoring wells located outside of the area of attainment are proposed for monitoring.

Groundwater pump and treat performance monitoring generally includes monitoring wells within the plume. Some of the existing wells could be used for this purpose. Furthermore, the exact number and location of monitoring wells should not be determined until a sufficient understanding of the flow system as it has been modified by the pump and treat system is completed.

6. Alternatives involving on-site excavation for source removal should consider temporary partial dewatering of the Columbia aquifer within the source area since significant coal tar contamination was encountered beneath the water table during the RI. Lowering the water table would permit excavation of source material to a greater depth than can be achieved without dewatering.

5.3 Alternative 3 (p. 5-24)

7. Any assumptions and important input parameters used in the Multiple Well Capture Zone Module should be explained in the FS report. Also, the model output should be included in an appendix to the FS.

5.4.3 Alternative 4C (p. 5-54)

8. It is not clear why hydraulic containment isn't stated as a separate component of this alternative since the in-situ biological treatment of off-site soil also involves groundwater extraction. This section should also indicate whether the injection wells would be screened in the vadose zone or below the water table.

Please let me know if you have any questions or if you would like to discuss any of these issues in greater detail. I can be reached at 597-1268.

cc: Eric Johnson (3HW13)
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AR306313